THE KARYOTYPES OF THREE BRAZILIAN SPECIES OF THE GENUS *DASYPROCTA* (RODENTIA, DASYPROCTIDAE)

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ABSTRACT

The karyotypes of *Dasyprocta fuliginosa* Wagler, 1832 from the Amazon Region, of *D. aguti* (Linnaeus, 1766) and *D. prymnolopha* Wagler, 1831 from Northeastern Brazil are described. Standard staining techniques were applied to all species, and C and G banding techniques were applied only to *D. aguti*. All species presented 2n=64 and FN=122. All pairs consist of two-armed chromosomes except the last, pair 31, which consists of one-armed chromosomes. The data obtained are similar to those reported for other Neotropical specimens, suggesting the karyotypic stability of the genus *Dasyprocta* Illiger, 1811.

KEYWORDS. *Dasyprocta fuliginosa*, *D. aguti*, *D. prymnolopha*, chromosomes, Brazil.

INTRODUCTION

According to Wooos (1993), the dasyproctids are represented by two genera, *Dasyprocta* Illiger, 1811 (11 species) and *Myoprocta* Thomas, 1903 (2 species). The family Dasyproctidae is endemic of the American continent and most of its species occur in South America.

The genus *Dasyprocta* is most in need of a taxonomic revision, and its is difficult to identify the different species due to the presence of many intermediate forms. The original pattern of distribution is certainly disturbed by trade, breeding in captivity and release of animals far from their place of origin.

This genus has been little studied from a cytogenetic point of view (see references in tab. I) and most of the available studies used only standard staining techniques. The karyotypes of six species are known, with a stable diploid number (2n= 64) and fundamental number (FN= 122). In the genus *Dasyprocta*, most autosomes are difficult to classify due to their similarity in shape and size. Thus, investigators distinguished only between one-armed or two-armed chromosomes.

The purpose is to study the karyotypes of *Dasyprocta aguti* Linnaeus, 1766, type

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locality Pernambuco, *D. prymnolopha* Wagler, 1831 that occurs in Northeastern Brazil and *D. fuliginosa* Wagler, 1832 distributed from Western Amazonia to Venezuela, Colombia, Equador and Peru.

MATERIAL AND METHODS

Voucher specimens were deposited in the mammal collection of the Departamento de Sistemática e Ecologia, Universidade Federal da Paraíba (UFPB), João Pessoa, Paraíba.

The following specimens were karyotyped: two *D. fuliginosa* females (UFPB 1371-72) supplied by Eletronorte, 1989 and captured during flooding of the reservoir of the Hydroelectric Plant of Samuel in the Jamari River, Rondonia (08°45'S; 63°26'W); four *D. aguti* males (UFPB 1424, 1425, 2190, 2191) obtained from the Parque Arruda Camera, João Pessoa (origin uncertain, probably Paraíba State) and the "Centro de Criação de Animais Silvestres" (CCAS) of the Escola Superior de Agricultura de Mossoró (ESAM) State of Rio Grande do Norte, (origin uncertain, probably Rio Grande do Norte); two *D. prymnolopha* males (UFPB 1496-1497) also obtained from the CCAS, ESAM, (origin uncertain, probably Rio Grande do Norte).

The specimens of *D. prymnolopha* studied have the black spot located on the rump above the tail which is characteristic of this species. The *D. aguti* examined have the rump and sides of the hip orange-rufous. HUSSON (1978) considered *D. aguti* as a junior synonym of *D. leporina* (Linnaeus,1758) but it is not likely that the animal from Guyana (*D. leporina*) belongs to the same species than the one from Pernambuco (*D. aguti*).

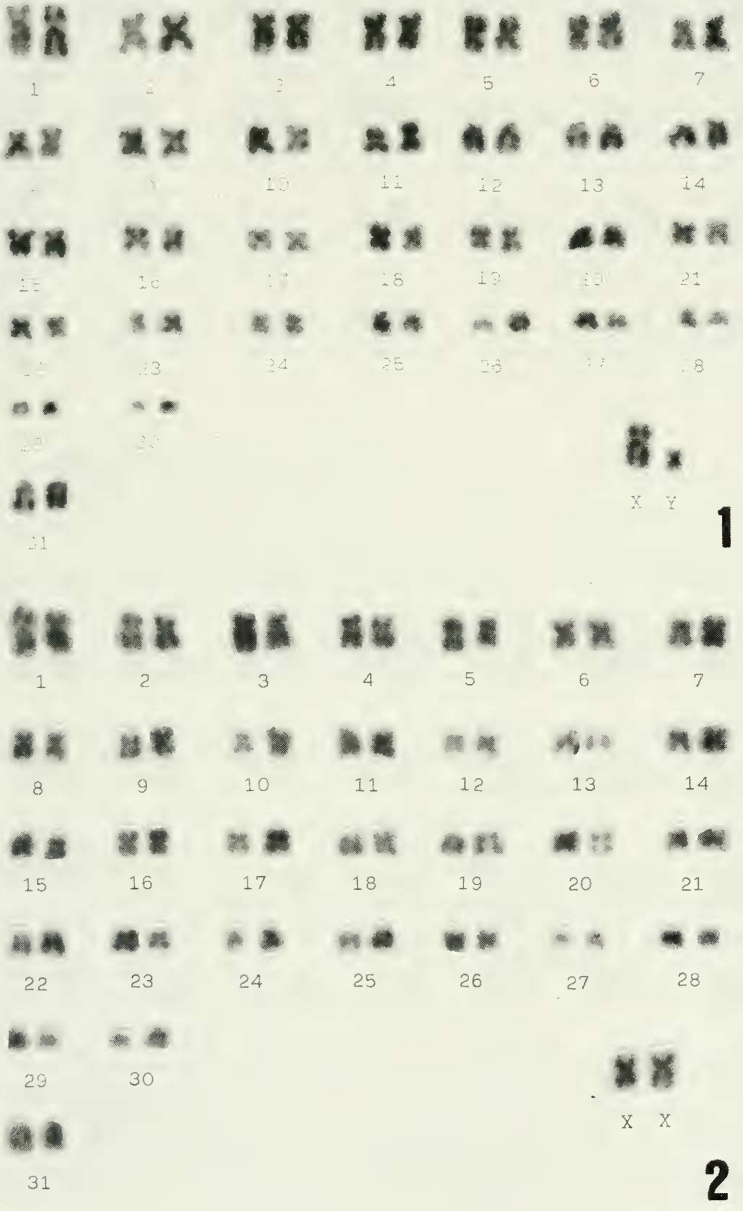
Mitotic preparations were directly obtained from bone marrow by the method of BAKER **et al.** (1982). Slides were submitted to standard staining and to G and C banding by the method of SEABRIGHT (1971) and SUMNER (1972) , respectively. Between 5 and 45 metaphases were analyzed from each species.

RESULTS AND DISCUSSION

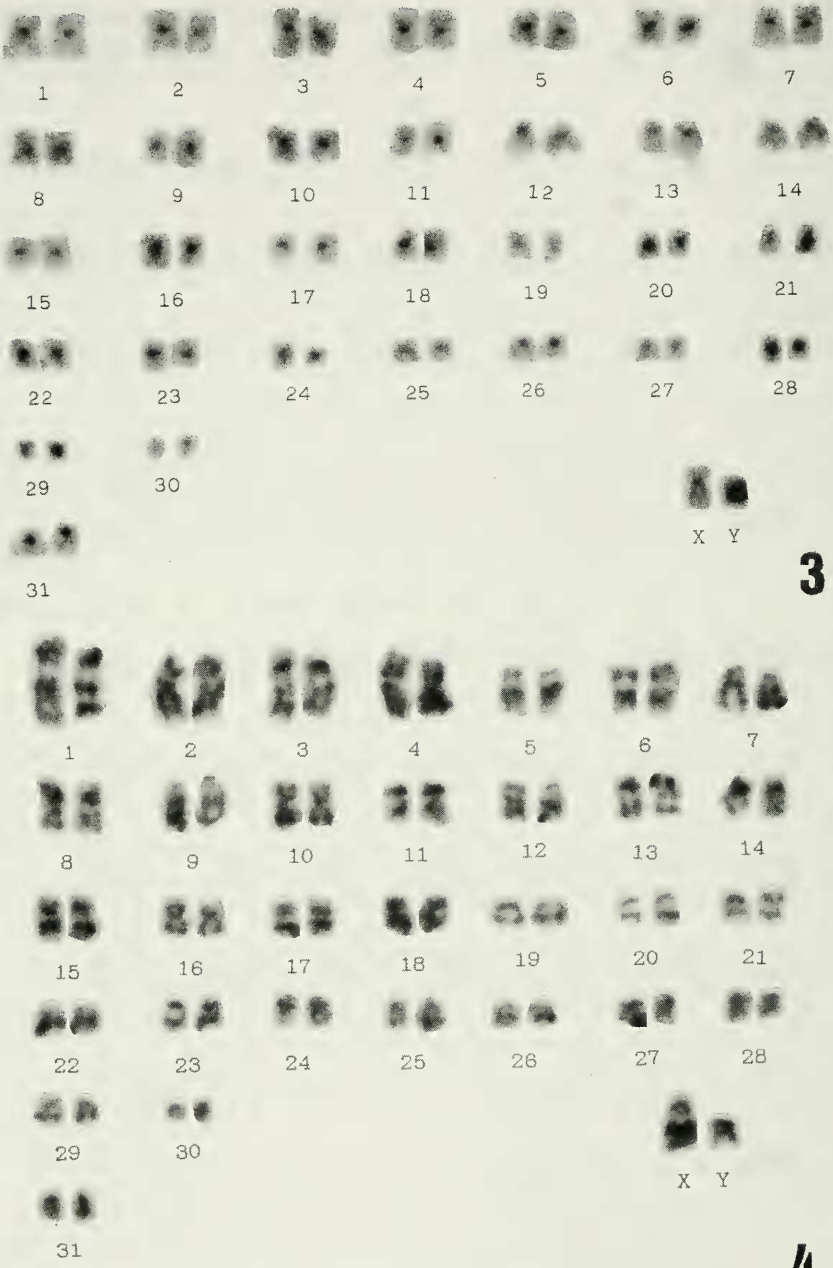
All *Dasyprocta aguti, D. prymnolopha* and *D. fuliginosa* specimens showed a diploid number of 2n=64 and a fundamental number of FN = 122. The autosome complement (figs. 1, 2) consists of 30 pairs of two-armed chromosomes, pairs 1 to 30, that gradually decrease in size, and a single acrocentric, pair 31. Pairs 1, 3, 7, 8 and 9 are submetacentric, 2, 4, 5, 6, 10 and 11 are metacentric, and 12, 13, 14 and 25 are subtelocentric. The small size of the remaining chromosomes do not permit a precise classification by shape. In *D. aguti* the X is a medium-sized metacentric, as in most species of *Dasyprocta,* (tab. I) and the Y is a small metacentric (figs. 1, 2). Probably the X chromosome of *D. fuliginosa* is also a medium-sized submetacentric equivalent in size to the chromosme pair 3 (fig. 2) as in *D. aguti.*

The 2n, FN and sex pair of *D. aguti* studied here are identical to those *of D. "aguti"* studied by HSU & BENIRSCHKE (1968). The same occurs with *D. variegata* Tschudi, 1845 (HUNGERFORD & SNYDER 1964) from Peru and Bolivia with respect to 2n, FN and chromosome X, but chromosome Y differs by being a small submetacentric. The *D. fuliginosa* females studied here showed 2n=64 and FN=122 like the remaining species in the genus. We do not have information about Y morphology, since the present data only refer to females.

The genus Myoprocta, with 2n=62, FN=118 (HSU & BENIRSCHKE, 1968), differs from most dasyproctids by presenting a lower 2n and FN. This decrease is due to the loss of a two-armed chromosome pair. Furthermore, the X is a medium-sized submetacentric chromosome and the Y is a small acrocentric. These differences in sex pair between the genera *Dasyprocta* and *Myoprocta* may be explained by the occurrence of pericentric inversions.



Figs.1-2. Karyotypes: 1, *Dasyprocta aguti* (2n=64, FN=122), male, with standard staining; 2, *D. fuliginosa* (2n=64, FN=122), female, with standard staining.



Figs.3-4. Karyotypes of *Dasyprocta aguti* (2n=64, FN=122); 3, male, with C banding; 4, male, with G banding.

Table I. Karyotypes in the family Dasyproctidae. a, small acrocentric; M/m, large/small metacentric; SM/sm, large/small submetacentric; " ", medium chromosome; * determined by us in accordance with the source; 1, Kasahara & Y.-Yasuda (1984); 2, Hsu & Benirschke (1968); 3, Hungerford & Snyder (1964)

SPECIES	2n	FN	AUTOSOME PAIRS WITH 1arm	2arms	X	Y	ORIGIN	SOURCE
Dasyprocta azarae	64	-	-	-	-	-	São Paulo - Brazil	1
D. "aguti"	64	*122	1	30	"M"	m	Venezuela and Guianas	2
D. aguti	64	122	1	30	"M"	m	Paraíba, Rio Grande do Norte-Brazil	-
D. fuliginosa	64	122	1	30	"SM"	-	Rondônia - Brazil	-
D. variegata	64	*122	1	30	"M"	sm	Perú, Bolivia, Argentina	3
D. prymnolopha	64	122	1	30	M	-	Rio Grande do Norte - Brazil	-
Myoprocta acouchy	62	*118	1	29	"SM"	a	Amazonas - Brazil, Guianas and Colombia	2

The G and C banding results were obtained only for *D. aguti*. The C-bands were of variable size and located in the pericentromeric region of all autosomes and the X, whereas the Y was completely heterochromatic. The resolution obtained by G banding permitted a reasonable pairing of most chromosomes (fig. 4). Chromosome X presented the two dark bands, on its long arms, characteristic of mammals (Pathak & Stock, 1974).

The amount of information now available on several species suggests the karyological stability of *Dasyprocta*. Speciation in this polytipic genus has not been accompanied or originated by chromosome differentiation or chromosomic reproductive isolation.

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